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RCA

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MEDIUM-MU TWIN TRIODE

9-PIN MINIATURE TYPE

For use in mobile communications equipment operating from 6-cell storage-battery systems. Useful as an rf amplifier in direct-coupled cathode-drive circuits at frequencies up to 200 Mc.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

Voltage range.	12 to 15	. . . . ac or dc volts	
Current (Approx.) at 13.5 volts	0.18	. . . . .amp	

Direct Interelectrode Capacitances:°

	Unit No.1	*Unit No.2*	
Grid to plate.	1.2	1.2	μμf
Grid to cathode, internal shield, and heater	2.6	–	μμf
Plate to cathode, internal shield, and heater	1.2	–	μμf
Plate to cathode	0.12	0.12	μμf
Cathode to heater.	2.6	2.7	μμf
Cathode to grid, internal shield, and heater	–	5	μμf
Plate to grid, internal shield, and heater	–	2.2	μμf
Plate of unit No.1 to plate of unit No.2.	0.01 max.		μμf
Plate of unit No.2 to plate and grid of unit No.1.	0.024 max.		μμf

Characteristics, Class A_1 Amplifier (Each Unit):

Heater Voltage	13.5	volts
Plate-Supply Voltage	150	volts
Cathode Resistor	220	ohms
Amplification Factor	36	
Plate Resistance (Approx.)	5300	ohms
Transconductance	6800	μmhos
Plate Current.	10	ma
Grid Voltage (Approx.) for plate μa = 10.	-12	volts

Mechanical:

Operating Position	Any
Maximum Overall Length	2-3/16"
Maximum Seated Length.	1-15/16"
Length, Base Seat to Bulb Top (Excluding tip)	1-9/16" ± 3/32"
Diameter	0.750" to 0.875"
Dimensional Outline.	*See General Section*
Bulb	T6-1/2

° With external shield JETEC No.315 connected to pin 9.

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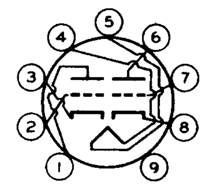
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Base. . . . . .Small-Button Noval 9-Pin (JETEC No.E9-1)
Basing Designation for BOTTOM VIEW. 9AJ

Pin 1 - Plate of Unit No.2
Pin 2 - Grid of Unit No.2
Pin 3 - Cathode of Unit No.2
Pin 4 - Heater
Pin 5 - Heater



Pin 6 - Plate of Unit No.1
Pin 7 - Grid of Unit No.1
Pin 8 - Cathode of Unit No.1
Pin 9 - Internal Shield

AMPLIFIER — Class A_1

Values are for Each Unit

Maximum Ratings, *Absolute Values:*

PLATE VOLTAGE	275 max.	volts
PLATE DISSIPATION	2.2 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode .	150 max.	volts
Heater positive with respect to cathode .	150 max.	volts

Maximum Circuit Values:

Grid-Circuit Resistance	0.5 max.	megohm

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

Values are for Each Unit Unless Otherwise Specified

	Note	*Min.*	*Max.*	
Heater Current.	1	0.165	0.195	amp
Direct Interelectrode Capacitances:				
Grid to cathode, internal shield, and heater (Unit No.1)	2	2.05	3.15	μμf
Cathode to grid, internal shield, and heater (Unit No.2)	2	4.1	5.9	μμf
Plate to grid, internal shield, and heater (Unit No.2)	2	1.9	2.5	μμf
Amplification Factor.	1,3	26	46	
Plate Current	1,4	7	13	ma
Transconductance.	1,3	5800	7800	μmhos
Reverse Grid Current (Total—both units)	1,5	-	-2	μa
Heater-Cathode Leakage Current:				
Heater negative with respect to cathode.	1,6	-	20	μa
Heater positive with respect to cathode.	1,6	-	20	μa

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	Note	*Min.*	*Max.*	
Leakage Resistance:				
Between grid and all other electrodes of both units tied together.	1,7	50	–	megohms
Between plate and all other electrodes of both units tied together.	1,8	50	–	megohms

Note 1: With ac or dc heater volts = 13.5.

Note 2: With external shield JETEC No.315 connected to pin 9.

Note 3: With dc plate-supply volts = 150, cathode resistor (ohms) = 220, and cathode-bypass capacitor (μf) = 1000. Each unit tested separately. Electrodes of unit not under test are connected to ground.

Note 4: With dc plate-supply volts = 150, and cathode resistor (ohms) = 220. Each unit tested separately. Electrodes of unit not under test are connected to ground.

Note 5: With dc plate-supply volts = 250, cathode resistor (ohms) = 250, and grid resistor (megohms) = 0.5. Units are tested in parallel with cathode and grid resistors common to both units.

Note 6: With 150 volts dc between heater and cathode.

Note 7: With grid 100 volts negative with respect to all other electrodes of both units tied together.

Note 8: With plate 300 volts negative with respect to all other electrodes of both units tied together.

SPECIAL RATINGS & PERFORMANCE DATA

Heater-Cycling Life Performance:

This test is performed on a sample lot of tubes from each production run. A minimum of 2000 cycles of intermittent operation is applied under the following conditions: heater volts = 17 cycled one minute on and four minutes off, heater 180 volts negative with respect to cathode, and all other elements connected to ground. At the end of this test, tubes are checked for heater-cathode shorts and open circuits.

Low-Frequency Vibration Performance:

This test is performed on a sample lot of tubes from each production run under the following conditions: units connected in parallel, heater volts = 13.5, plate-supply volts = 250, grid volts = -8, plate load resistor (ohms) = 2000, and vibrational acceleration of 2.5 g at 25 cps. In this test, the rms output voltage must not exceed 150 millivolts.

500-Hour Intermittent Life Performance:

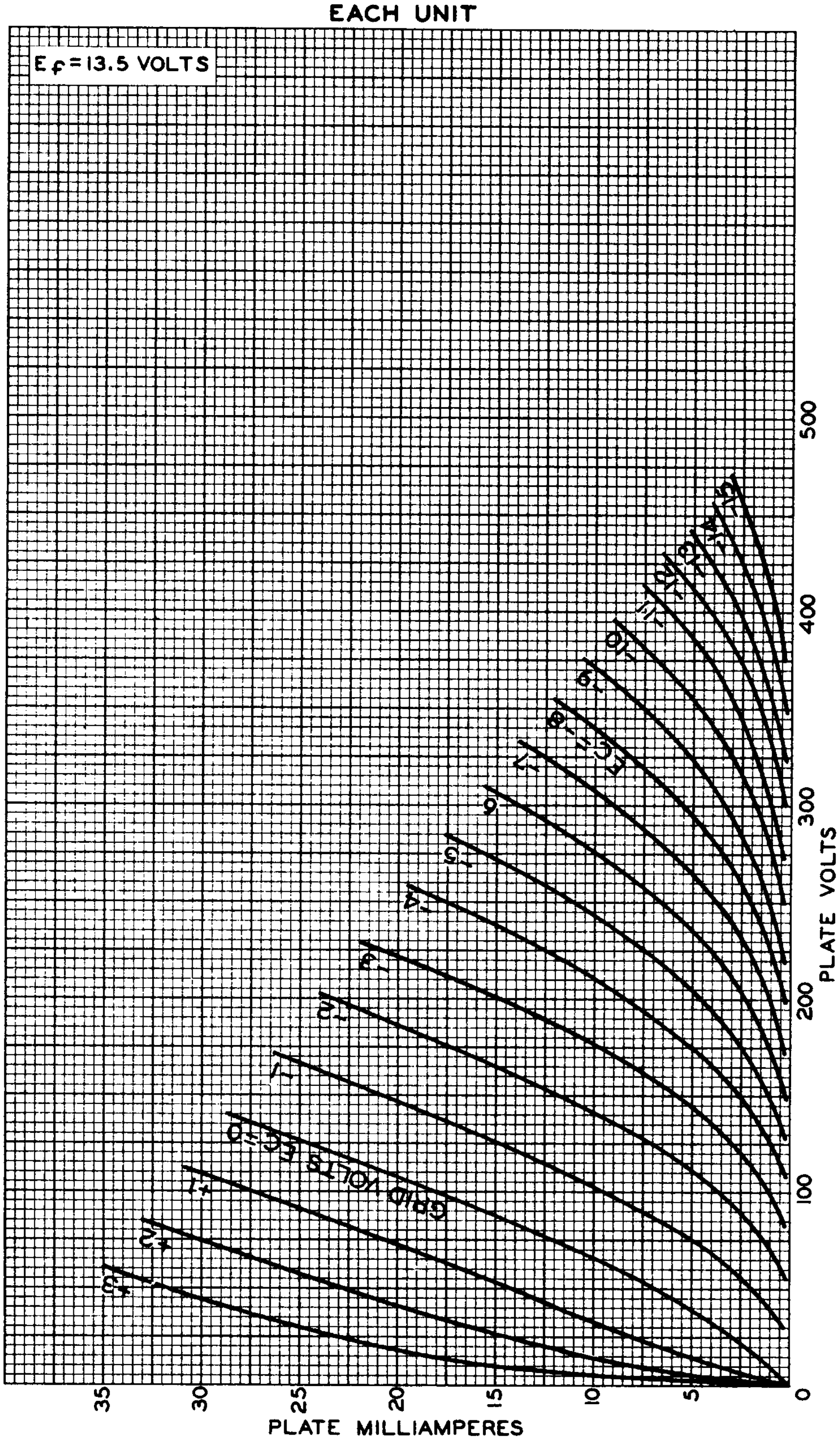
This test is performed on a sample lot of tubes from each production run to insure high quality of the individual tube and to guard against epidemic failures. Life testing is conducted under the following conditions: heater volts = 15 and maximum-rated plate dissipation.

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AVERAGE PLATE CHARACTERISTICS

EACH UNIT



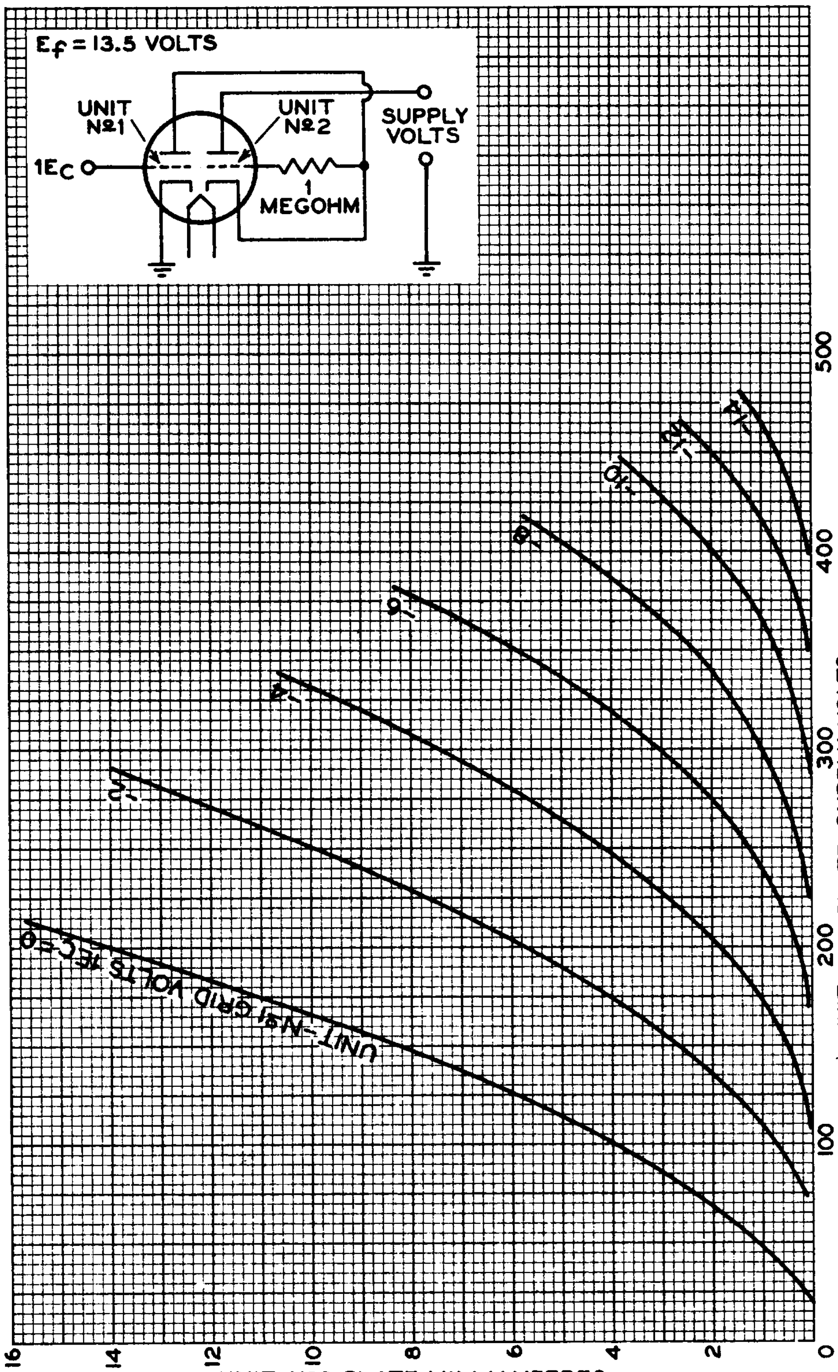
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AVERAGE PLATE CHARACTERISTICS
DIRECT-COUPLED DRIVEN RF AMPLIFIER IN CATHODE-DRIVE CIRCUIT



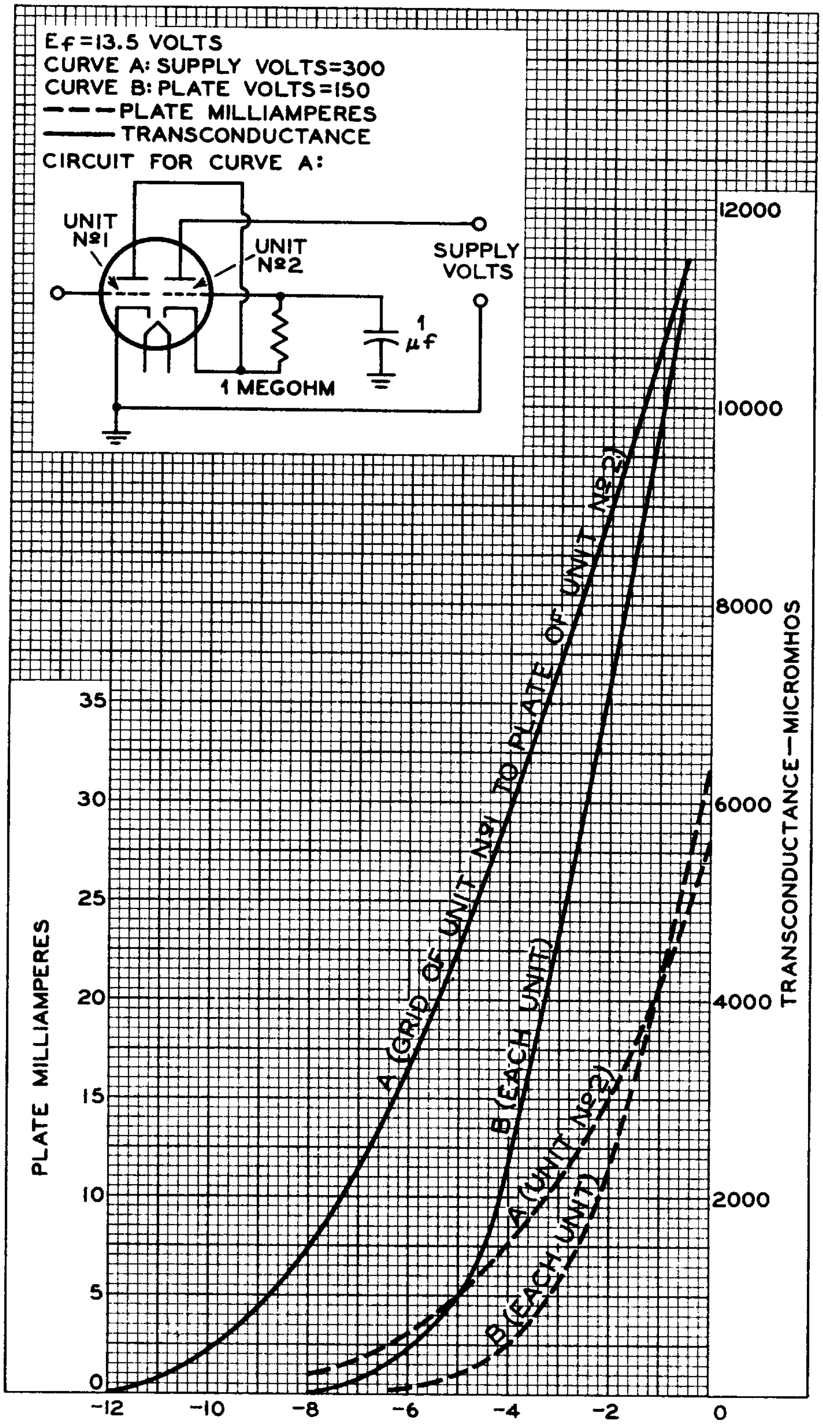
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AVERAGE CHARACTERISTICS



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